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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/807,724 | 03/24/2004 | Gregor McDowall | H0006427-1070 | 3716 |
| 128 | 7590 | 05/06/2005 | EXAMINER | |
| HONEYWELL INTERNATIONAL INC. 101 COLUMBIA ROAD P O BOX 2245 MORRISTOWN, NJ 07962-2245 | | | NGUYEN, TRAN N | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2834 | |

DATE MAILED: 05/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

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|------------------------------|-------------------------------|---------------------------------|--|
| Office Action Summary | Application No. 10/807,724 | Applicant(s) MCDOWALL ET AL. | |
| | Examiner Tran N. Nguyen | Art Unit 2834 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) ____ is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>03/04</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. **Claims 1, 5-9, and 13-14** are rejected under 35 U.S.C. 102(b) as being fully anticipated by Costello (US 3,008,786).

Costello discloses a wedge-shaped member (20-21), configured to fit between core poles of a generator to restrain coil windings from moving under centrifugal force, the wedge-shaped member (20-21) comprising:

a first plate (35 of wedge 20) having at least one through-hole (47);

a second plate (35 of wedge 20) positioned opposite the first plate and positioned at an angle relative to the first plate (fig 5); and

one or more reinforcing members (21) (figs 1-3) coupled between the first plate and the second plate and substantially perpendicular to the first plate and second plate;

the second plate also includes at least one through-hole (47, fig 5) (*as recited in claim 5*);

Costello also discloses a synchronous electric machine, which inherently can function as a generator, comprising:

a rotor frame (10);

a first and second of core poles (12) coupled to the rotor frame;

a coil (17) wound around the first core pole; and

the wedge-shaped member (20-21) positioned between the first core pole and the second core pole to support the coils;

the first plate (37) abutting the first core pole, a second plate (37) abutting the second core poles, and one or more cross members coupled between the first plate and the second plate (fig 2) *(as recited in claim 6)*;

wherein

the rotor frame (10) is substantially cylindrical and has a first axis of rotation (parallel to shaft 11), the first and second of core poles (12) extending radially from the rotor frame along the length of the rotor frame (fig 1, 3) *(as recited in claim 7)*;

a second coil (17) wound around the second core (fig 1) *(as recited in claim 8)*;

the first core pole has a core pole tip (15) that is wider than the core pole (12), the core pole tip configured to secure the wedge-shaped member in place (fig 1-2)*(as recited in claim 9)*;

the first plate , the second plate of the wedge (20) and the one or more cross members (21) define one cavity within the wedge-shaped member (fig 2) *(as recited in claim 13)*;

the first plate includes one or more passages (47) extending from a first surface to a second surface of the first plate *(as recited in claim 14)*.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claim 16** is rejected under 35 U.S.C. 103(a) as being unpatentable over Costello, as applied in the rejection of the base claims, in view of **Pittard et al (US 6, 113,024)**.

Costello discloses the claimed invention, except for the added limitation of the end band coupling to the rotor frame for securing the slot wedge thereto.

Pittard, however, teaches that a typical wound generator rotors use a center wedge to retain the copper coil (winding) in the rotor slot. The center wedge generally is held in place by one of different techniques, one of which is more commonly is the use of rotor end bands (not shown). Pittard teaches that slot wedge retains winding in place and itself is held in place by rotor end bands (not shown) and the use of rotor end bands to secure the slot wedges is well known in the art (Pittard's col 1, lines 20-30, col 4, lines 41-44).

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the machine by providing end bands to secure the wedges in place during the rotation of the rotor, as taught by Pittard. Doing so would provide a mechanical means to ensure the abutment of the wedges in place and such use of end bands is well known in the art.

3. **Claims 1-15, and 17-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Sigmund et al (US 2,400,576)**.

Kjeer discloses a electric machine, which can function as a generator, comprising:

a rotor frame (16);

a first and second of core poles (18) coupled to the rotor frame;

coils (20) wound around the first and second core poles; and

the rotor frame is substantially cylindrical and has a first axis of rotation (14), the first and second of core poles extending radially from the rotor frame along the length of the rotor frame (figs 1-3);

the wedge-shaped member (24) positioned between the first core pole and the second core pole to support the coils, and having a trapezoidal cross-section area (fig 3);

the first plate (26) abutting the first core pole, a second plate (28) abutting the second core poles,

the first core pole has a core pole tip that is wider than the core pole, the core pole tip configured to secure the wedge-shaped member in place (fig 1-3)

a third plate (30) having a first longitudinal edge and a second longitudinal edge, the first longitudinal edge of the third plate (30) coupled along a first longitudinal edge of the first plate (26) and the second longitudinal edge of the third plate coupled to a first longitudinal edge of the second plate (28) (fig 3), i.e., the third plate position along the sort side of the trapezoidal wedge-shaped member; and,

the first and second plates (26, 28) are substantially rectangular and one reinforcing members (32) that has a "T" shaped plate extending from a second longitudinal edge of the first plate (26) and a second longitudinal edge of the second plate (28), via the horizontal portion of the "T" shaped plate, and extending to the third plate (30), via the vertical portion of the "T" shaped plate;

the first plate (26), the second plate (28) and the cross members (32) define one cavity within the wedge-shaped member (fig 3).

Kjeer substantially discloses the claimed invention, except for the following:

(a) the first plate includes one or more through holes, i.e., one or more passages extending from a first surface to a second surface of the first plate, and a bonding material impregnated therethrough (as recited in claims 1, 4-5, 14-15 and 20);

(b) the third plate has a curvature that conforms to the rotor frame (as recited in claims 12 and 19).

Regarding the limitations of the subsection (a) herein, Sigmund, however, teaches a wedge-shaped member having the first and second plates configured with through holes (49, figs 7-8), i.e., one or more passages for impregnated bonding material passing therethrough to secure the coils.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the machine by providing the through holes or passages in the plates of the wedge-shaped member, as taught by Sigmund. Doing so would provide means for impregnated bonding material passing therethrough to secure the coil, the wedge-shaped member to the core.

Regarding the limitations of the subsection (b) herein, Kjeer does disclose a third plate incorporating with the first and second plates of the wedge member to secure the winding of the rotor poles. This is the essential disclosed component of the slot wedge. Those skilled in the art would understand that it would be obvious to an artisan with necessary mechanical skills to modify the disclosed essential component by changing size or shape for enhanced abutment and support.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the disclosed third plate of the wedge-shaped member by changing the shape thereof to have a curvature that conforms to the rotor frame. Doing so would enhance abutment of the wedge on the rotor frame, and this modification would require only necessary skills in the art because a change in size or shape is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955) (emphasis added).

4. **Claim 16** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Kjeer and Sigmund**, as applied in the rejection of the base claims, in view of **Pittard et al.**

The **Kjeer and Sigmund** reference combination discloses the claimed invention, except for the added limitation of the end band coupling to the rotor frame for securing the slot wedge thereto.

Pittard, however, teaches that a typical wound generator rotors use a center wedge to retain the copper coil (winding) in the rotor slot. The center wedge generally is held in place by one of different techniques, one of which is more commonly is the use of rotor end bands (not shown). **Pittard** teaches that slot wedge retains winding in place and itself is held in place by rotor end bands (not shown) and the use of rotor end bands to secure the slot wedges is well known in the art (**Pittard's** col 1, lines 20-30, col 4, lines 41-44).

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the machine by providing end bands to secure the wedges in place during the

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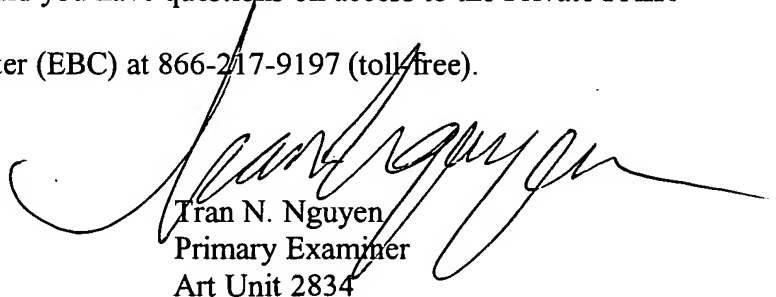
rotation of the rotor, as taught by Pittard. Doing so would provide a mechanical means to ensure the abutment of the wedges in place and such use of end bands is well known in the art.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tran N. Nguyen whose telephone number is (571) 272-2030. The examiner can normally be reached on M-F 7:00AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571)-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).


Tran N. Nguyen
Primary Examiner
Art Unit 2834